

REMARKS

Claims 1-6 are pending in this application.

Claims 3 and 5 are withdrawn with traverse due to restriction requirement. Applicants reserve the right to file a divisional on said claims.

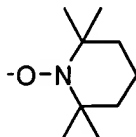
Applicants are grateful to the examiner for rejoining claim 4 with claims 1, 2 and 6.

Claims 1, 2, 4, and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Matyjaszewski et al. (U.S. 5,789,487) in view of J. Ueda et al., Macromolecules, Vol. 31, No. 3, pages 557-562. Said rejection is respectfully traversed.

The primary reference, Matyjaszewski et al (Ref. 1), teaches atom transfer radical polymerization and polymers obtained by this method, but is clearly deficient in failing to teach "branched" polymers such as these resulting from the polymerization with branched initiator molecules. As taught in the introductory section of the instant disclosure (pages 1-4), initiator molecules are obtainable in a previous step by esterification of a tri-, tetra-, penta- or hexahydric alcohols (=polyols) with an initiator halo-acid. Reference 1 discloses in Col. 17, lines 15-20, polyesterification of a diol with a diacid in the presence of 2-bromopropionic acid or chloroacetic acid. This type of reaction yields a linear structure, not a branched polymer structure.

The reference by J. Ueda et al., Macromolecules (Ref. 2) clearly teaches the desirability of "multiarmed or star polymers". However, the disclosure is strictly limited to the use of initiators that possess two or three dichloroacetate units per molecule. See page 558, left column, lines 5-6, below the first reaction scheme top, and the reaction scheme on page 558, left column, at the bottom of Ref. 2. Applicants respectfully point out that the "three armed" initiators 3a and 3b of the second reaction scheme on page 558, left column have the unacceptably high number of six chlorine atoms within their molecular structure. Chlorine is responsible for undesirable side-reactions, such as elimination of hydrogen chloride and the subsequent formation of double bonds. These double bonds compete in the polymerization process with the double bonds of the ethylenically unsaturated monomers or, in the alternative, are exposed to oxygenation, which results in staining of the polymers obtained ("yellowing").

Therefore, the terminal chlorine in polymers obtained by ATRP (Atom Transfer Radical Polymerization) is replaced by radicals of the TEMPO-type (tetramethylpiperidine oxide):



(see nonelected claim 3). That is, the presently claimed polymers are useful intermediates for the preparation of the polymers of nonelected claim 3. In the event that initiator molecules 3a and 3b of Ueda were used and the three chlorine atoms were subsequently replaced with TEMPO radicals, three chlorine atoms would still remain in the resulting polymer. Since these chlorine atoms are not terminal, they are not as easily exchanged with the TEMPO radicals. Clearly replacing the linear initiator in Reference 1, (disclosed in Col. 17, lines 15-20) with the branched ones of examples 3a and 3b of Reference 2 as the Examiner suggests would not give rise to any polymers within the claimed scope.

Reconsideration and withdrawal of the rejection of claims 1, 2, 4, and 6 under 35 U.S.C. § 103(a) as being unpatentable over Matyjaszewski et al. (U.S. 5,789,487) in view of J. Ueda et al., *Macromolecules*, Vol. 31, No. 3, pages 557-562 is respectfully solicited in light of the remarks supra.

In the event that minor amendments will further prosecution, Applicants request that the examiner contact the undersigned representative.

Respectfully submitted,

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Enclosure: Petition for extension of time

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